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EXAMINER
FORMAN, BETTY J

ART UNIT PAPER NUMBER

1634

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11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/758,873

Applicant(s)

CHEN ET AL.

Examiner

BJ Forman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Restrictions

1. Applicant's election with traverse of Group I in Paper No. 8 is acknowledged. The traversal is on the grounds(s) that it would not be undue burden to examine the claims of all groups I-V because Groups I and II have been classified by the examiner as belonging to identical classes and subclasses and because the claims of Groups III, IV and V are drawn to one-dimensional arrays as are the claims of Groups I and II. However, it is maintained that undue burden would be required to examine the claims of groups II, III, IV, V and VI along with claims of group I as evidenced by the fact that the claims of groups I & II and III, IV, V & VI have acquired a separate status in the art as recognized by their different classifications as recognized by their divergent subject matter and because a search of the subject matter of invention I is not co-extensive with a search of inventions II-V. Specifically, a search of the subject matter of Group 1 will encompass an extensive search of substrates, probe area dimensions and substrate dimensions; a search of the subject matter of Group II would encompass an extensive search of layered substrates and substrate layer composition which is not co-extensive with the search of Group I; a search of the subject matter of Group III would encompass an extensive search of probe arrangement and probe density which is not co-extensive with the search of Group I; a search of the subject matter of Group IV would encompass an extensive search of tape substrates and tape dimensions which is not co-extensive with the search of Group I; a search of the subject matter of Group V would encompass fiber substrates and fiber dimensions which is not co-extensive with the search of Group I; and a search of the subject matter of Group IV would require and extensive of probe depositing apparatus which is not co-extensive with the search of Group I. For the reasons given above, it is maintained that undue burden would be required to examine the claims of groups II, III, IV, V and VI along with claims of group I.

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The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. The references listed on the 1449 of Paper No. 4, 5, 7 and 9 have been reviewed and considered.

Priority

3. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 2-5 and 9-12 of this application. Provisional Applications 60/175,255, filed 01/10/2000; Provisional Application 60/190,495, filed 03/20/2000; and Provisional Application 60/227,874, filed 08/25/2000 do not teach or describe the dimensions of the discrete area containing probe as recited in Claims 2-5 and they do not teach or describe the ratio of length to width of the substrate as recited in Claims 9-12. Therefore, the effective filing date for Claims 2-5 and 9-12 is the filing date of Provisional Application 60/244,418 i.e. 10/30/2000.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 8-12 and 39-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 8-12 are each indefinite for the recitation "the ratio" because "ratio" lacks proper antecedent basis in Claim 1. It is suggested that Claims 8-12 each be amended to provide proper antecedent basis e.g. replace "the" with "a".

b. Claims 39-41 are each indefinite for the recitation "the probe can bind to a target" because it is unclear what limitation the recitation imposes upon the probe. It is suggested that Claims 39-41 be amended to clarify e.g. replace "can bind to" with "is a binding partner for".

c. Claims 42-44 are each indefinite for the recitation "the probe carrier" because "probe carrier" lacks proper antecedent basis in Claims 1, 28, 30 and 33. It is suggested that Claims 41-44 each be amended to provide proper antecedent basis.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this

subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1, 6, 7, 9, 28, 30, 33-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Stimpson et al (BioTechniques, 1998, 25(5): 886-890).

Regarding Claim 1, Stimpson et al disclose an apparatus for allowing specific identification of samples with probes comprising: a flexible elongated substrate having a first substrate surface, a length and a width; a plurality of non-identical probes immobilized on discrete areas (i.e. lane) of a probe-containing portion of the substrate surface each of said discrete areas containing one probe (page 887, left column and Fig. 1 and 2). The additional probes on the substrate of Stimpson are encompassed by the open claim language "containing".

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) (see MPEP, 2111.03).

Regarding Claim 6, Stimpson et al disclose the apparatus of Claim 1 wherein the probes are polynucleotides (page 886, right column, first paragraph).

Regarding Claim 7, Stimpson et al disclose the apparatus of Claim 1 wherein the substrate is a polymer i.e. polyethersulfone (page 887, left column, first full paragraph).

Regarding Claim 9, Stimpson et al disclose the apparatus of Claim 1 wherein the ratio of length to width of the substrate exceeds 5:1 (page 887, left column, second full paragraph).

Regarding Claim 28, Stimpson et al disclose the apparatus of Claim 1 further comprising a spool (i.e. rod) about which said substrate is wrapped (page 887, left column, second full paragraph and Fig. 2).

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Regarding Claim 30, Stimpson et al disclose the apparatus of Claim 1 further comprising a drum (i.e. rod) about which said substrate is wrapped (page 887, left column, second full paragraph and Fig. 2).

Regarding Claim 33, Stimpson et al disclose the apparatus of Claim 1 wherein said substrate is coiled about an elongated support member (i.e. rod) (page 887, left column, second full paragraph and Fig. 2).

Regarding Claim 34, Stimpson et al disclose the elongated support member has a diameter of less than about 10 m m (page 887, left column, second full paragraph and Fig. 2).

Regarding Claim 35, Stimpson et al disclose the elongated support member has a diameter of between about 10 m m and 150 mm (page 887, left column, second full paragraph and Fig. 2).

Regarding Claim 36, Stimpson et al disclose the apparatus of Claim 28 wherein the probes are polynucleotides (page 886, right column, first paragraph).

Regarding Claim 37, Stimpson et al disclose the apparatus of Claim 30 wherein the probes are polynucleotides (page 886, right column, first paragraph).

Regarding Claim 38, Stimpson et al disclose the apparatus of Claim 33 wherein the probes are polynucleotides (page 886, right column, first paragraph).

Regarding Claim 39, Stimpson et al disclose the apparatus of Claim 28 wherein the probe is a nucleic acid (page 886, right column, first paragraph) which can bind to a target selected from a complementary polynucleotide, a complementary oligonucleotide, a nucleic acid binding protein, a nucleic acid binding polypeptide or a nucleic acid binding antibody.

Regarding Claim 40, Stimpson et al disclose the apparatus of Claim 30 wherein the probe is a nucleic acid (page 886, right column, first paragraph) which can bind to a target selected from a complementary polynucleotide, a complementary oligonucleotide, a nucleic acid binding protein, a nucleic acid binding polypeptide or a nucleic acid binding antibody.

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Regarding Claim 41, Stimpson et al disclose the apparatus of Claim 33 wherein the probe is a nucleic acid (page 886, right column, first paragraph) which can bind to a target selected from a complementary polynucleotide, a complementary oligonucleotide, a nucleic acid binding protein, a nucleic acid binding polypeptide or a nucleic acid binding antibody.

Regarding Claim 42, Stimpson et al disclose the apparatus of Claim 28 wherein the probe carrier comprises a substrate which is a polymer i.e. polyethersulfone (page 887, left column, first full paragraph).

Regarding Claim 43, Stimpson et al disclose the apparatus of Claim 30 wherein the probe carrier comprises a substrate which is a polymer i.e. polyethersulfone (page 887, left column, first full paragraph).

Regarding Claim 44, Stimpson et al disclose the apparatus of Claim 33 wherein the probe carrier comprises a substrate which is a polymer i.e. polyethersulfone (page 887, left column, first full paragraph).

8. Claims 1-4, 6-9, 28, 30 and 33-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Stimpson et al (U.S. Patent No. 6,037,186, filed 16 July 1997).

Regarding Claim 1, Stimpson et al disclose an apparatus for allowing specific identification of samples with probes comprising: a flexible elongated substrate having a first substrate surface, a length and a width; a plurality of non-identical probes immobilized on discrete areas (i.e. lane) of a probe-containing portion of the substrate surface each of said discrete areas containing one probe (Column 5, lines 9-39). The additional probes on the substrate of Stimpson are encompassed by the open claim language "containing".

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited

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elements or method steps. See, e.g., *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) (see MPEP, 2111.03).

Regarding Claim 2, Stimpson et al disclose the apparatus of Claim 1 wherein the area containing one probe has a length not exceeding 500 micrometers i.e. the printed lines are 50 to 100 micrometers (Column 8, lines 14-23) and the array bundle is sliced to a thinness of 200 micrometers (Column 9, lines 11-17) providing length to width dimensions of 50 to 200.

Regarding Claim 3, Stimpson et al disclose the apparatus of Claim 1 wherein the area containing one probe has a length not exceeding 100 micrometers i.e. the printed lines are 50 to 100 micrometers (Column 8, lines 14-23) and the array bundle is sliced to a thinness of 200 micrometers (Column 9, lines 11-17) providing length to width dimensions of 50 to 200.

Regarding Claim 4, Stimpson et al disclose the apparatus of Claim 1 wherein the area containing one probe has a length not exceeding 50 micrometers i.e. the printed lines are 50 to 100 micrometers (Column 8, lines 14-23) and the array bundle is sliced to a thinness of 200 micrometers (Column 9, lines 11-17) providing length to width dimensions of 50 to 200.

Regarding Claim 6, Stimpson et al disclose the apparatus of Claim 1 wherein the probes are polynucleotides and polypeptides (Column 3, lines 46-54).

Regarding Claim 7, Stimpson et al disclose the apparatus of Claim 1 wherein the substrate material is selected from silica, glass optical fibers, plastics, polymers and polytetrafluoroethylene (Column 10, lines 16-57).

Regarding Claim 8, Stimpson et al disclose the apparatus of Claim 1 further comprising a first marker which conveys information about a first set of probes and a second marker which conveys information about a second set of probes (Column 7, lines 49-54).

Regarding Claim 9, Stimpson et al disclose the apparatus of Claim 1 wherein the ratio of length to width of the substrate exceeds 5:1 i.e. 21.5 foot x 8 inches (Column 9, lines 1-2 and 11-15).

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Regarding Claim 28, Stimpson et al disclose the apparatus of Claim 1 further comprising a spool (i.e. rod-shaped support) about which said substrate is wrapped (Column 7, line 66-Column 8, line 8).

Regarding Claim 30, Stimpson et al disclose the apparatus of Claim 1 further comprising a drum (i.e. rod-shaped support) about which said substrate is wrapped (Column 7, line 66-Column 8, line 8).

Regarding Claim 33, Stimpson et al disclose the apparatus of Claim 1 wherein said substrate is coiled about an elongated support member (i.e. rod-shaped support) (Column 7, line 66-Column 8, line 8).

Regarding Claim 34, Stimpson et al disclose the elongated support member has a diameter of less than about 10 m m (Column 8, lines 49-56).

Regarding Claim 35, Stimpson et al disclose the elongated support member has a diameter of between about 10 m m and 150 m m (Column 8, lines 49-56).

Regarding Claim 36, Stimpson et al disclose the apparatus of Claim 28 wherein the probes are selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies (Column 3, lines 46-54).

Regarding Claim 37, Stimpson et al disclose the apparatus of Claim 30 wherein the probes are selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies (Column 3, lines 46-54).

Regarding Claim 38, Stimpson et al disclose the apparatus of Claim 33 wherein the probes are selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies (Column 3, lines 46-54).

Regarding Claim 39, Stimpson et al disclose the apparatus of Claim 28 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (Column 6, lines 8-36).

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Regarding Claim 40, Stimpson et al disclose the apparatus of Claim 30 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (Column 6, lines 8-36).

Regarding Claim 41, Stimpson et al disclose the apparatus of Claim 33 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (Column 6, lines 8-36).

Regarding Claim 42, Stimpson et al disclose the apparatus of Claim 28 wherein the probe carrier comprises a substrate selected from silica, glass optical fibers, plastics, polymers and polytetrafluoroethylene (Column 10, lines 16-57).

Regarding Claim 43, Stimpson et al disclose the apparatus of Claim 30 wherein the probe carrier comprises a substrate selected from silica, glass optical fibers, plastics, polymers and polytetrafluoroethylene (Column 10, lines 16-57).

Regarding Claim 44, Stimpson et al disclose the apparatus of Claim 33 wherein the probe carrier comprises a substrate selected from silica, glass optical fibers, plastics, polymers and polytetrafluoroethylene (Column 10, lines 16-57).

9. Claims 1, 6-8, 28-33 and 35-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Siegesmund (WO 99/39186, published 5 August 1999).

Regarding Claim 1, Siegesmund discloses an apparatus for allowing specific identification of samples with probes comprising: a flexible elongated substrate having a first substrate surface, a length and a width; a plurality of non-identical probes immobilized on

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discrete areas (i.e. lane) of a probe-containing portion of the substrate surface each of said discrete areas containing one probe (page 6, lines 3-33). The additional probes on the substrate of Stimpson are encompassed by the open claim language "containing".

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) (see MPEP, 2111.03).

Regarding Claim 6, Siegesmund discloses the apparatus of Claim 1 wherein the probes are polypeptides (page 7, lines 8-11).

Regarding Claim 7, Siegesmund discloses the apparatus of Claim 1 wherein the substrate material is selected from plastics and polymers (page 7, lines 11-25).

Regarding Claim 8, Siegesmund discloses the apparatus of Claim 1 further comprising a first marker which conveys information about a first set of probes and a second marker which conveys information about a second set of probes (page 8, lines 25-34).

Regarding Claim 28, Siegesmund discloses the apparatus of Claim 1 further comprising a spool about which said substrate is wrapped (page 9, lines 22-26).

Regarding Claim 29, Siegesmund discloses the apparatus of Claim 28 wherein the substrate comprises a thread (i.e. fiber) (page 7, lines 21-23).

Regarding Claim 30, Siegesmund discloses the apparatus of Claim 1 further comprising a drum (i.e. spool) about which said substrate is wrapped (page 9, lines 22-26).

Regarding Claim 31, Siegesmund discloses the apparatus of Claim 30 wherein the substrate comprises a thread (i.e. fiber) (page 7, lines 21-23).

Regarding Claim 32, Siegesmund discloses the apparatus of Claim 31 wherein a first portion of said substrate sit adjacent a second portion on a surface of said drum (Fig. 2).

Regarding Claim 33, Siegesmund discloses the apparatus of Claim 1 wherein said substrate is coiled about an elongated support member (i.e. spool) (page 9, lines 22-26).

Regarding Claim 36, Siegesmund discloses the apparatus of Claim 28 wherein the probes are selected from the group consisting of proteins, polypeptides, antibodies (page 7, lines 8-11).

Regarding Claim 37, Siegesmund discloses the apparatus of Claim 30 wherein the probes are selected from the group consisting of proteins, polypeptides, antibodies (page 7, lines 8-11).

Regarding Claim 38, Siegesmund discloses the apparatus of Claim 33 wherein the probes are selected from the group consisting of proteins, polypeptides, antibodies (page 7, lines 8-11).

Regarding Claim 39, Siegesmund discloses the apparatus of Claim 28 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (page 4, lines 17-35).

Regarding Claim 40, Siegesmund discloses the apparatus of Claim 30 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (page 4, lines 17-35).

Regarding Claim 41, Siegesmund discloses the apparatus of Claim 33 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (page 4, lines 17-35).

Regarding Claim 42, Siegesmund discloses the apparatus of Claim 28 wherein the probe carrier comprises a substrate selected from plastics and polymers (page 7, lines 8-25).

Regarding Claim 43, Siegesmund discloses the apparatus of Claim 30 wherein the probe carrier comprises a substrate selected from plastics and polymers (page 7, lines 8-25).

Regarding Claim 44, Siegesmund discloses the apparatus of Claim 33 wherein the probe carrier comprises a substrate selected from plastics and polymers (page 7, lines 8-25).

10. Claims 1-7 28-33 and 35-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Tajima (U.S. Patent Application Publication No. 2001/0031495 A1, filed 13 March 2000).

Regarding Claim 1, Tajima discloses an apparatus for allowing specific identification of samples with probes comprising: a flexible elongated substrate having a first substrate surface, a length and a width; a plurality of non-identical probes immobilized on discrete areas (i.e. lane) of a probe-containing portion of the substrate surface each of said discrete areas containing one probe (page 10-11, ¶ 0163-0164). The additional probes on the substrate of Stimpson are encompassed by the open claim language "containing".

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) (see MPEP, 2111.03).

Regarding Claim 2, Tajima discloses the apparatus of Claim 1 wherein each discrete area containing one probe has a length not exceeding 500 micrometers (page 11, ¶ 0165).

Regarding Claim 3, Tajima discloses the apparatus of Claim 1 wherein each discrete area containing one probe has a length not exceeding 100 micrometers (page 11, ¶ 0165).

Regarding Claim 4, Tajima discloses the apparatus of Claim 1 wherein each discrete area containing one probe has a length not exceeding 50 micrometers (page 11, ¶ 0165).

Regarding Claim 5, Tajima discloses the apparatus of Claim 1 wherein each discrete area containing one probe has a length not exceeding 200 micrometers (page 11, ¶ 0165).

Regarding Claim 6, Tajima discloses the apparatus of Claim 1 wherein the probes are polynucleotides, polypeptides and polysaccharides (page 16, ¶ 0253).

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Regarding Claim 7, Tajima discloses the apparatus of Claim 1 wherein the substrate material is selected from silica, glass fibers, metals magnetizable materials, plastics and polymers (page 10, ¶ 0163).

Regarding Claim 28, Tijima discloses the apparatus of Claim 1 further comprising a spool (i.e. rolling core) about which said substrate is wrapped (page 13, ¶ 199).

Regarding Claim 29, Tijima discloses the apparatus of Claim 28 wherein the substrate comprises a thread (Abstract).

Regarding Claim 30, Tijima discloses the apparatus of Claim 1 further comprising a drum (i.e. rolling core) about which said substrate is wrapped (page 13, ¶ 199).

Regarding Claim 31, Tijima discloses the apparatus of Claim 30 wherein the substrate comprises a thread (Abstract).

Regarding Claim 32, Tijima discloses the apparatus of Claim 31 wherein a first portion of said substrate sit adjacent a second portion on a surface of said drum (Fig. 3).

Regarding Claim 33, Tijima discloses the apparatus of Claim 1 wherein said substrate is coiled about an elongated support member (i.e. rolling core) (page 13, ¶ 199).

Regarding Claim 36, Tijima discloses the apparatus of Claim 28 wherein the probes are selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, oligosaccharides and antibodies (page 16, ¶ 0253).

Regarding Claim 37, Tijima discloses the apparatus of Claim 30 wherein the probes are selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, oligosaccharides and antibodies (page 16, ¶ 0253).

Regarding Claim 38, Tijima discloses the apparatus of Claim 33 wherein the probes are selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, oligosaccharides and antibodies (page 16, ¶ 0253).

Regarding Claim 39, Tijima discloses the apparatus of Claim 28 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (page 16, ¶ 0253).

Regarding Claim 40, Tijima discloses the apparatus of Claim 30 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (page 16, ¶ 0253).

Regarding Claim 41, Tijima discloses the apparatus of Claim 33 wherein the probe can bind to a target selected from the group consisting of polynucleotides, oligonucleotides, proteins, polypeptides, antibodies, cell receptors and ligands (page 16, ¶ 0253).

Regarding Claim 42, Tijima discloses the apparatus of Claim 28 wherein the probe carrier comprises a substrate selected from silica, glass fibers, metals magnetizable materials, plastics and polymers (page 10, ¶ 0163).

Regarding Claim 43, Tijima discloses the apparatus of Claim 30 wherein the probe carrier comprises a substrate selected from silica, glass fibers, metals magnetizable materials, plastics and polymers (page 10, ¶ 0163).

Regarding Claim 44, Tijima discloses the apparatus of Claim 33 wherein the probe carrier comprises a substrate selected from silica, glass fibers, metals magnetizable materials, plastics and polymers (page 10, ¶ 0163).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stimpson et al (U.S. Patent No. 6,037,186, filed 16 July 1997).

Regarding Claim 5, Stimpson et al teach an apparatus for allowing specific identification of samples with probes comprising: a flexible elongated substrate having a first substrate surface, a length and a width; a plurality of non-identical probes immobilized on discrete areas (i.e. lane) of a probe-containing portion of the substrate surface each of said discrete areas containing one probe (Column 5, lines 9-39) wherein the area containing one probe has a length not exceeding 500 micrometers i.e. the printed lines are 50 to 100 micrometers (Column 8, lines 14-23) and the array bundle is sliced to a thinness of 200 micrometers (Column 9, lines 11-17) providing length to width dimensions of 50 to 200 but they do not teach a discrete area length not exceeding 20 micrometers. However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the area length of Stimpson et al using routine experimentation to derive optimal area length e.g. 20 micrometers for the obvious benefits of optimizing apparatus dimensions to thereby maximize experimental results. It is noted that *In re Aller*, 220 F.2d 454,456, 105 USPQ 233,235 states where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum by routine experimentation.

Regarding Claim 10-12, Stimpson et al teach the apparatus of Claim 1 wherein the ratio of length to width of the substrate exceeds 5:1 i.e. 21.5 foot x 8 inches (Column 9, lines 1-2 and 11-15) but they do not teach the ratio exceeds 100:1 (Claim 10); exceeds 10,000:1 (Claim 11); and exceeds 100,000:1 (Claim 12). However, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the length to width ratio of Stimpson et al using routine experimentation to derive optimal ratios e.g. 100:1, 10,000:1 or

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100,000:1 for the obvious benefits of optimizing apparatus dimensions to thereby maximize experimental results. It is noted that *In re Aller*, 220 F.2d 454,456, 105 USPQ 233,235 states where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum by routine experimentation.

13. Claims 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stimpson et al (a) (U.S. Patent No. 6,037,186, filed 16 July 1997) in view of Heynekder (WO 97/46313, published 11 December 1997).

Regarding Claims 29, 31 and 32, Stimpson et al (a) teach the apparatus of Claim 1 wherein further comprising a spool/drum about which said substrate is wrapped (Column 8, lines 44-48) wherein a first portion (i.e. line) of said substrate sits adjacent a second portion (i.e. lines) of said substrate on a surface of the drum (Column 7, lines 49-55) but they do not teach the substrate comprises a thread. However, thread substrates were well known and routinely practiced in the art at the time the claimed invention was made as taught by Heynekder (page 9, lines 12-25). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thread substrate of Heynekder to the substrate of Stimpson et al and to wrap thread substrates about the spool drum because the wrapped threads would eliminate the substrate slicing in the method of Stimpson et al. Specifically, the substrate sheet of Stimpson et al is wrapped about the spool and then sliced to provide multiple substrates (Column 9, lines 8-16). Using a thread substrate would simplify the apparatus of Stimpson et al by eliminating the slicing step which separates substrate into multiple substrates because the thread substrates are separate from each other. Therefore, one skilled in the art would have been motivated to apply the thread substrates of Heynekder to the apparatus of Stimpson et al for the obvious benefits of eliminating the unnecessary step of slicing.

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Conclusion


14. No claim is allowed.


15. The examiner and Art Unit for this application have changed. Please address correspondence to BJ Forman, Ph.D., Art Unit: 1634.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.


BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
June 25, 2002


W. Gary Jones
Supervisory Patent Examiner
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